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CLAIMS:

1. A laser system comprising

- a laser diode member (101) comprising a first surface (116) for emitting a light beam with an intensity distribution around an optical axis (107), the light beam comprising a plurality of spatial modes each mode corresponding to a respective emission angle relative to the optical axis;
- first selection means (109,110, 502) for selecting a first part of the emitted light beam corresponding to a first one of said plurality of spatial modes emitted at a first emission angle on a first side of the optical axis;
- a first reflective member (106, 502) where the laser diode member and the first reflective member define a first cavity and where the first reflective member is adapted to reflect a first feedback fraction of the selected first part of the emitted light beam back into the laser diode member and to produce a first output beam (113) corresponding to a first output fraction of the selected first part of the emitted light beam;
- second selection means (109,111; 503) for selecting a second part of the emitted light beam corresponding to a second one of said plurality of spatial modes emitted at a second emission angle on a second side of the optical axis opposite to the first side;
- a second reflective member (112; 503) where the laser diode member and the second reflective member define a second cavity and where the second reflective member is adapted to reflect a second feedback fraction of the selected second part of the emitted light beam back into the laser diode member and to produce a second output beam (114) corresponding to a second output fraction of the selected second part of the emitted light beam.

2. A laser system according to claim 1, characterised in that each of the plurality of spatial modes is associated with a corresponding mode number; and that the first and second selection means are adapted to select

corresponding first and second spatial modes associated with corresponding first and second mode numbers where the first mode number is equal to the second mode number.

3. A laser system according to claim 1 or 2, characterised in that the first and second feedback fractions are substantially the same fraction.

4. A laser system according to any one of claims 1 through 3, characterised in that the system further comprises at least one optical element (108) for producing an optical Fourier transformation of the emitted light beam in a diffraction plane (103) of said at least one optical element and that at least one of the first and second selection means is placed substantially in the diffraction plane of the at least one optical element.

5. A laser system according to any one of claims 1 through 4, characterised in that the laser system further comprises an antireflective coating (203) on the first side of the laser diode member, the antireflective coating providing a reflectivity between 0.05% and 20%, preferably between 0.1% and 2%.

6. A laser system according to any one of claims 1 through 5, characterised in that the intensity distribution around the optical axis defines a high coherence axis and a low coherence axis of the laser diode, the low coherence axis and the optical axis defining a plane of low coherence, the plurality of spatial modes being emitted at respective emission angles in the low coherence plane, and that the laser system further comprises third selection means (105) for selecting a part of the emitted light beam in a direction across the plane of low coherence.

7. A laser system according to any one of claims 1 through 6, characterised in that the first and second selection means comprise respective first (1203) and second (1204) gratings embedded in the laser diode member, the first and second gratings defining an angle between them corresponding to the emission angle of the selected spatial mode.

8. A laser system according to claim 7, characterised in that the first surface of the laser diode member comprises a first (1307) and a second (1308) area defining an angle between them corresponding to the emission angle of the selected spatial mode, and that the first and second reflective members comprise corresponding reflective coatings (1311,1312) on the corresponding first and second area.

9. A laser system according to any one of claims 1 through 8 characterised in that the laser diode member comprises a bar (1501) of single-emitter diodes.

10. A laser system according to any one of claims 1 through 9 characterised in that the laser diode member comprises a stack (1400) of single-emitter diodes.

11. A laser system according to any one of claims 1 through 10, characterised in that the system further comprises a modulator element (2001, 2002, 2102, 2202) for modulating at least one of the first and second output beams.

12. A laser system comprising

- a laser diode member (101) comprising a first surface (116) for emitting a light beam with an intensity distribution around an optical axis (107), the light beam comprising a plurality of spatial modes each mode corresponding to a respective emission angle relative to the optical axis;
- at least one optical element (108) for producing an optical Fourier transformation of the emitted light beam in a diffraction plane of said at least one optical element;
- first selection means (109,111) for selecting a first part of the emitted light beam corresponding to a first one of said plurality of spatial modes emitted at a first emission angle on a first side of the optical axis;
- a reflective member (2601) where the laser diode member and the reflective member define a cavity and where the reflective member is

adapted to reflect a feedback fraction of the selected first part of the emitted light beam back into the laser diode member;

- second selection means (109,110) for selecting a second part of the emitted light beam corresponding to a second one of said plurality of spatial modes emitted at a second emission angle on a second side of the optical axis opposite to the first side, and that the second selection means is placed substantially in the diffraction plane of the at least one optical element.

13. A laser system according to claim 12, characterised in that each of the plurality of spatial modes is associated with a corresponding mode number; and that the first and second selection means are adapted to select corresponding first and second spatial modes associated with corresponding first and second mode numbers where the first mode number is equal to the second mode number.

14. A laser system comprising

- a laser diode member (101) comprising a first surface for emitting a light beam with an intensity distribution around an optical axis (107) defining a plane of low coherence and a plane of high coherence, the light beam comprising a plurality of spatial modes each mode corresponding to a respective emission angle relative to the optical axis and in the plane of low coherence;
- first selection means (109,111) for selecting a first part of the emitted light beam corresponding to a first one of said plurality of spatial modes emitted at a first emission angle on a first side of the optical axis in the plane of low coherence;
- second selection means (105) for selecting, in a direction (FA) across the plane of low coherence, a second part of selected first part of the emitted light beam;
- a reflective member (2601) where the laser diode member and the reflective member define a cavity and where the reflective member is

adapted to reflect a feedback fraction of the selected second part of the emitted light beam back into the laser diode member.

15. A method of aligning a laser system according to any one of claims 1 through 11, the method comprising

- measuring a predetermined property of the emitted light beam while the second selection means and the second reflective member are deactivated;
- adjusting at least one of the position and the orientation of at least one of the first reflective member and the first selection means to obtain an emitted light beam having a predetermined value of the measured predetermined property;
- activating the second selection means and the second reflective member to cause the laser system to produce a first and a second output beam;
- measuring a predetermined measure of quality of the first and second output beams;
- adjusting at least one of the position and the orientation of at least one of the second reflective member and the second selection means to improve the measured predetermined measure of quality of the first and second output beams.

16. Use of a laser system according to any one of claims 1 through 14 in the graphical industry.

17. Use of a laser system according to any one of claims 1 through 14 in an internal drum image setting system

18. An internal drum image setting system comprising

- a drum member (2301) having an inner surface for receiving light sensitive material (2302);
- a support member (2306) mounted movably relatively to said drum member;

- a laser system according to any one of claims 1 through 11 for producing at least two output beams where the laser system is mounted on said support member;
- at least one optical element (2303) for defining respective beam paths for the at least two output beams and for focussing the at least two output beams on the light sensitive material; and
- means (2303) for directing the at least one output beam towards predetermined positions on the inner surface of the drum member.

19. An internal drum image setting system according to claim 18, characterised in that the means for directing the at least one output beam towards predetermined positions on the inner surface of the drum member comprises a pivotally mounted mirror (2303) in the beam path of at least one of the output beams adapted, cooperatively with the movably mounted support member, to direct the at least one output beam towards predetermined positions on the inner surface of the drum member.

20. An internal drum image setting system according to claim 18 or 19, characterised in that the at least one optical element further comprises a quaterwave plate (2005) inserted in the beam path of one of the output beams.